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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,955	10/17/2003	Robert Alvin May	IPIN-0002	9856

46188 7590 03/16/2010

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EXAMINER	
DUNN, DARRIN D	
ART UNIT	PAPER NUMBER
2121	
MAIL DATE	DELIVERY MODE
03/16/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/687,955	MAY, ROBERT ALVIN	
	Examiner	Art Unit	
	DARRIN DUNN	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 November 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *45-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *50* is/are allowed.

6)☒ Claim(s) *45-48, 51* is/are rejected.

7)☒ Claim(s) *49* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The Office Action is responsive to the communication filed on 11/27/2009.

2. Claims 45-51 are pending in the application.

Allowable Subject Matter

3. Claim 49 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Claim 50 recites "means plus" terminology such that the corresponding structures implemented in the application differ from the combination and and/or configuration of structures depicted in Folkes et al. and Dinker et al.

5. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse the lack of antecedent basis regarding the implementation of a network manager, discussed below. The allowance is subject to be withdrawn in the event the scope of the claim is altered via rectifying the objection for a lack of antecedent basis.

Specification

6. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required.

7. Claim 45 recites a "cluster internal communication mechanism." Applicant's claim terminology states that routing information is stored via a cluster internal communication mechanism. Applicant's published specification, paragraphs 0035-0040, 0058-0059, 0065-0066, 0070, 0073, and 0087 are the only sections that reference a cluster. However, a review of these paragraphs in light of the specification/drawings do not provide antecedent basis for an internal communication mechanism for the cluster.

8. Claim 45 and 51 recite that a network manager issues a command such that a dynamic routing module of the first routing component stores routing information received from the second routing component via the a cluster internal communication mechanism . As per applicant's published specification, paragraph 0067, a network manager may issue commands halting operation, starting routing operations. As per paragraph 0071, a network manager may effectuate a seamless transition between the dynamic routing module and the alternative dynamic routing module. The network manager can be used to effectuate a 'last second' transition of information that could be used from the dynamic routing module. The specification does not support this particular functionality of triggering a synchronization-like command. Moreover, the specification does not support this functionality in the context of using an internal cluster communication mechanism.

35 USC § 101

9. As interpreted, a computer implemented method is recited for routing network traffic that specifically implements an apparatus. The 'identifying of the apparatus' requires that the process claim explicitly recite the particular machine or apparatus or recite a step that inherently involves

the use of a particular machine or apparatus. Claim 45 recites first and second routing components configured in a redundant configuration comprising OSPF modules for effectuating this routing. Thus, for the purpose of examination, the method is tied to a statutory process.

Double Patenting

10. Claim 45 is provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 10 of copending Application No. 10/966367. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented. Moreover, if dependent claim 49 is re-written into independent form, a potential double-patenting rejection may arise due to the substantial similarity between claim 47 of the present application and co-pending claim 26 of application 10/966367.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 45-48 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dinker et al. USPN 20040098490) in view over Folkes et al. (USPN 2003/0218982) in view over J. Moy (Hitless OSPF Restart | February 2002), and in further view over Dinker et al. (USPN 20040098490) and in further view over Lin et al. (USPN 20030154431)

14. As per claims 45 and 51, Dinker et al. teaches a computer implemented method for routing network traffic flowing to and from a cluster of network enabled devices (Figure 1-elements 100A |100B) having at least a first network enabled device (node 150A) with a first routing component ([Figure 2-element 190A) and a second network enabled device (Node 150B) with a second routing component (190B) and a network manager, the network manager external to and communicably coupled to the first routing component and the second routing component, each of the network enabled devices in the cluster configured to communicate with network devices external to the cluster through a single network address ([0009] , [0031] e.g. as interpreted, a Cluster ID represents a single address from which messages may be addressed) , each of the network enabled devices in the cluster configured to operate in parallel ([0021-[0023]) and independently of each other, the method comprising:

at the second network enabled device, receiving one or more incoming messages indicating the single network address as a destination address ([0031] e.g., as understood, messages are routed via a cluster ID);

at the second network enabled device, routing the one or more incoming messages to one of the network enabled devices in the cluster ([0029], [0035], [0039] e.g., node router);

However, Dinker et al. does not teach the redundant router configuration depicted in the following limitations. Folkes et al. teaches the following:

at a configuration manager module (24) (e.g., as set fort in the application, a configuration manager is interpreted as storing state information. The active OSPF, as per paragraph 0029, sends messages describing its current dynamic state to a backup OSPF) of the first routing component (22) , storing configuration information relayed from a configuration manager module (23) of the second routing component (21) ; and

at a dynamic routing module (24) of the first routing component(22) , in response to a command from the network manager , storing routing information received from the second routing component (21) via a cluster internal communication mechanism (TCP);

wherein upon an unplanned failure ([ABSTRACT]]) of the second dynamic routing module (23) of the second routing component(21) , the dynamic routing module (24) of the first routing component (22) executes according to the configuration information stored in the configuration manager module of the first routing component (e.g., OSPF state information);

Therefore, at the time the invention was made one of ordinary skill in the art would have motivation to modify Dinker et al. to be utilized with the router configuration taught in Folkes et al. Dinker et al. teaches implementing a cluster router in communication with a plurality of clusters comprising internal nodes operable to receive incoming messages based on a single network address. Folkes et al. teaches applying a redundant routing configuration. It would have been obvious to have implemented a redundant routing configuration as part of a cluster

router, as per Dinker et al., so as to implement fault tolerant techniques to ensure greater system reliability.

However, Dinker et al., as modified, does not teach a network manager external to the system and whereby the manager issues a command for the first routing component to store information from the second routing component. Lin et al. teaches a network manager configured to synchronize all configuration information of the network interface modules from the primary to the backup agent module, i.e., the pertinent problem of using an entity to issue a synchronization command is illustrated ([0006]). Moreover, as per MPEP 2144.04, V. Making Portable, Integral, Separable, Adjustable, or Continuous, C. Making Separable, it is obvious that unless the location of the network manager module produces an unexpected benefit, use of a network device (e.g., network manager) may be internal or external to the routing configuration depicted in Folkes et al.

Therefore, at the time the invention was made, it would have been obvious to employ a separate entity, i.e., network device, to issue a synchronization command such that a first router/controller synchronizes its state information with that of a second router/controller. Although Lin et al. is from a different field of endeavor, it solves the pertinent problem of using a hardware device that embodies an syncrhonization function. Although the elements to which it synchronizes differ, a skilled artisan could readily implement such a hardware device to issue a synchronization command to redundant routers.

However, Dinker et al., as modified, does not teach the following. Folkes et al., as modified, teaches a first routing component configured to forward packets to a cluster, as per Dinker et al., but does not teach a hitless restart event. J. Moy teaches transmitting the aforementioned

limitations ([page 2 lines 1-5] e.g., router announces intention to perform a hitless restart, and asking for a "grace period.", i.e., transmitting a hitless restart, and neighbors continue to announce the restarting router in the their LSAs as if it were fully adjacent, i.e., continuing to forward packets. It is implied that maintaining adjacency during a failover will function to continue routing packets).

Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to implement a hitless restart by incorporating the OSPF enhancements as taught by J. Moy. Routers implement a separation of control and forwarding functions as to allow packet forwarding in the event control software is restart/reloaded. Given the potential that the control software in Folkes et al. may be restarted, it would have been advantageous to modify Folkes et al. to further maintain its data forwarding capability by implementing a hitless restart. One of ordinary skill in the art would have been capable of applying the known method of hitless restart as to further achieve seamless data forwarding as taught by Folkes et al. ([0026 lines 4-6])

15. As per claim 46, Folkes et al. teaches teaches the method of Claim 45 wherein the routing is performed under an OSPF routing protocol ([Figure 2A-element 23])

16. As per claim 47, Dinker et al, as modified (supra claim 45) teaches a routing component configured for use in a cluster of network enabled devices having at least a first network enabled device with the routing component and a second network enabled device with a second routing component and a network manager, the network manager external to and communicably coupled to the routing component and to the second routing component, each of the network enabled devices in the cluster configured to communicate with network devices external to the cluster through a single network address, each of the network enabled devices in the cluster configured

to operate in parallel and independently of each other, the routing component comprising:

a configuration manager module (21)configured to store configuration information relayed from a configuration manager module of the second routing component (24) (e.g., as set fort in the application, a configuration manager is interpreted as storing state information. The active OSPF, as per paragraph 0029, sends messages describing its current dynamic state to a backup OSPF; and

a dynamic routing module (24);

the routing component (22) configured to apply the configuration information through the interaction of the configuration manager module (24) and the configuration manager module (23) of the second routing component (21) to an instantiation of the dynamic routing module operating in the routing component (22) (Figure 2B-222, 224 | [0028-0029]);

the dynamic routing module (24) configured to execute in response to a command from the network manager, and further configured to execute according to the configuration information stored in the configuration manager module upon an unplanned failure of the second dynamic routing module (23) of the second routing component (21) ([0028-0029] e.g. supra claim 45 discussion for the implementation of a network manager); and

the routing component further configured to transmit a hitless restart event responsive to the unplanned failure of the second dynamic routing module of the second routing component, the hitless restart event signaling network enabled devices external to the cluster to continue forwarding packets to the cluster (e.g. supra claim 45 discussion and/or below for the use of a hitless restart mechanism applied to a redundant router)

Therefore, at the time the invention was made one of ordinary skill in the art would have motivation to modify Dinker et al. to be utilized with the router configuration taught in Folkes et al. Dinker et al. teaches implementing a cluster router in communication with a plurality of clusters comprising internal nodes operable to receive incoming messages based on a single network address. Folkes et al. teaches applying a redundant routing configuration. It would have been obvious to have implemented a redundant routing configuration as part of a cluster router, as per Dinker et al., so as to implement fault tolerant techniques to ensure greater system reliability.

However, Dinker et al., as modified, does not teach a network manager external to the system and whereby the manager issues a command for the first routing component to store information from the second routing component. Lin et al. teaches a network manager configured to synchronize all configuration information of the network interface modules from the primary to the backup agent module, i.e., the pertinent problem of using an entity to issue a synchronization command is illustrated ([0006]). Moreover, as per MPEP 2144.04, V. Making Portable, Integral, Separable, Adjustable, or Continuous, C. Making Separable, it is obvious that unless the location of the network manager module produces an unexpected benefit, use of a network device (e.g., network manager) may be internal or external to the routing configuration depicted in Folkes et al.

Therefore, at the time the invention was made, it would have been obvious to employ a separate entity, i.e., network device, to issue a synchronization command such that a first router/controller synchronizes its state information with that of a second router/controller. Although Lin et al. is from a different field of endeavor, it solves the pertinent problem of using

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Therefore, at the time the invention was made, one of ordinary skill in the art would have motivation to implement a hitless restart by incorporating the OSPF enhancements as taught by J. Moy. Routers implement a separation of control and forwarding functions as to allow packet forwarding in the event control software is restart/reloaded. Given the potential that the control software in Folkes et al. may be restarted, it would have been advantageous to modify Folkes et al. to further maintain its data forwarding capability by implementing a hitless restart. One of ordinary skill in the art would have been capable of applying the known method of hitless restart as to further achieve seamless data forwarding as taught by Folkes et al. ([0026 lines 4-6])

17. As per claim 48, Folkes et al. teaches teaches the method of Claim 45 wherein the routing is performed under an OSPF routing protocol ([Figure 2A-element 23])

Response to Amendment

18. The amendment, filed 11/27/09, has been entered.

Response to Arguments

19. Applicant's arguments with respect to claims 45-51 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DARRIN DUNN whose telephone number is (571)270-1645. The examiner can normally be reached on EST:M-R(8:00-5:00) 9/5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DD/
03/13/10

/Albert DeCady/
Supervisory Patent Examiner
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